Voiced or voiceless? Old English <f> in Middle English <fd> sequences

Voiced or voiceless? Old English <f> in Middle English <fd> sequences[1]

Margaret Laing, Roger Lass

Then since that I have neuer swarfde
Let not my paines be ondeseruid
(Sir Thomas Wyatt (1502–1542): London British Library, Egerton 2711, poem 41)

Abstract

The Old English past system for the verb *habban* HAVE, has past tense (pt) *hæfde, hefde* and past participle (ppl) *hæfd*, *hefd* (late West-Saxon also *hæfed* (Campbell 1959: §762)). Many early Middle English texts show a reflex set that does not reflect the handbook consensus on the voicing of fricatives between voiced segments. In certain text languages in the *Linguistic Atlas of Early Middle English* (LAEME) corpus of tagged texts (CTT), the ppl of the verb HAVE is *hVued*, while the pt is *hVfde*. The reflex of OE <f> in these words is spelled <u> intervocalically and <f> before <d>. This orthographic distinction seems to be systematic and is illustrated also by the reflexes of OE *hēafod* HEAD (LAEME *heued*, *bihefdet*), *hlǣfdige* LADY (*lefdi*, *lauedy*), *wēofod* ALTAR (*peofdes*, *peouedes* (pl), the past systems of *(be)lǣfan* LEAVE (*leafde*, *leuede*), (*be)lefan* BELIEVE (*lefde*, *ileuet*) and *(be)rēafian* (BE)REAVE (*reafde*, *reuede*).

By this stage in the history of English, voiceless and voiced fricatives could appear contrastively in initial position. This opened the way for <f> and <u/v> to contrast medially, which happened increasingly systematically. Our main research question therefore is: does <fd> in early Middle English texts represent [vd] as normally supposed, or could it represent [fd]?

From LAEME CTT we have retrieved the forms of all words that potentially show non-initial labial fricative plus voiced consonant: i.e. reflexes of OE non-initial <fd>, <fn>, <fr>, <fl>. The results indicate that the different consonants provoke non-arbitrary differential use of <u> or <f>. Frequency of occurrence of voicing is tied to the sonority of the following consonant in the pattern: voiced stops > nasals > liquids (order: lateral > rhotics). Voicing is most resisted where sonority is lowest, with [d] the most resistant followed by [n], [l] and [r] in that order. Our concluding hypothesis is that at least a subset of reflexes of OE <fd>, were at least variably pronounced [fd]. Such a pronunciation existed variably alongside [vd] and more commonly [ved], from voicing of [f] in voiced surroundings and addition of unhistorical [e]. Similarly, at least a subset of reflexes of OE non-initial <fn>, <fr>, <fl> also were at least variably pronounced with [f] and what we find in the texts are representations of what was current in speech.

1. The problem

The Old English paradigm for the verb *habban* HAVE, shows in past tense the forms *hæfde, hefde* and in past participle *hæfd*, *hefd* with late West-Saxon showing some *hæfed* (Campbell 1959: §762). In many early Middle English text languages we find a reflex set that does not seem to reflect the handbook consensus on the pattern of voicing of fricatives between voiced segments. OE

[1] We thank the Arts and Humanities Research Council for supporting the work on LAEME and CoNE that underpins this paper. We also thank Rhona Alcorn and Donka Minkova for comments on an early draft. A short version of the paper was delivered at the 20th International Conference on English Historical Linguistics (ICEHL XX), Edinburgh, 27-31 August 2018 and this version takes account of discussion there. We also thank two anonymous reviewers for very helpful suggestions. Notational conventions: OE citation forms and attestations from manuscript are in italics, glosses and the names of lexemes are in small capitals, manuscript letters are in angle brackets and sounds are represented by IPA symbols in phonetic brackets. Dates are given as they appear in LAEME, viz: C = century, a = first half, b = second half, a1 = first quarter, a2 = second quarter, b1 = third quarter, b2 = last quarter. Elsewhere V = vowel, C = consonant and F = fricative, both C and F being sometimes further specified in particular contexts in the paper.

habban is a Class 3 weak verb as is OE *libban*. In Old English, these verbs show the same morphology, with past tense and past participle of *libban* being *lifde*, *lifd*. The early Middle English development of the past tense in *libban* is not the same as that of *habban*, an observation which itself requires investigation. Whereas OE *hæfde* gives reflexes in early Middle English of the *hafde*, *hefde* type alongside reflexes of the *hauede* type, reflexes of OE *lifde* shows only spellings of the trisyllabic *liuede* type,[2] presumed to have been modelled on the pattern of the Middle English development of Old English weak class 2 verbs (Wright & Wright 1928: §429). For past participle, both verbs are remodelled, giving only *haued*, *liued* types. In other words, in these verbs' past systems, OE <f> between a vowel and <d> has in early Middle English become intervocalic, except variably in the past tense of HAVE.

1.1 Initial observation

In certain scribal texts or text languages in the *Linguistic Atlas of Early Middle English* (LAEME) corpus of tagged texts (CTT),[3] we find spellings for the past participle of the verb HAVE of the shape *hVued* beside spellings for the past tense of the shape *hVfde*. In other words, the reflex of OE <f> in these words is spelled <u> intervocalically, but <f> before <d>. This orthographic distinction seems to be systematic in these text languages and is illustrated also by the reflexes of OE *hēafod* HEAD (LAEME *heued*, *bihefdet*), *hlǣfdige* LADY (LAEME *lefdi*, *lauedy*), *wēofod* ALTAR (LAEME *peofdes*, *peouedes* (pl), the past tense and past participles of *(be)lǣfan* LEAVE (LAEME *leafde*, *leuede*), *(be)lefan* BELIEVE (LAEME *lefde*, *ileuet*) and *(be)rēafian* (BE)REAVE (LAEME *reafde*, *reuede*).

In some text languages this pattern of *Vfd* versus *VuVd* seems to be partly lexically determined. The LAEME CTT samples from Cambridge, Corpus Christi College 402 (*Ancrene Wisse*: LAEME text # 272 corpart) and Oxford, Bodleian Library, Bodley 34 (the Katherine Group: LAEME text # 1000 bod34t), which are the A and B respectively of AB language, have:[4]

HAVE past participle: *ihaued* (not in LAEME sample – supplied from MS)
HAVE past tense: *hefde(st)*, *hefden* (negative) *nefde*
HEAD: *heaued*
LADY: *leafdi*
BELIEVE past participle: *ileuet*
BELIEVE past tense: *leafden* pl.
BEREAVE past tense: *reafde*
OE *pēofod*: *peoued*, *peofdes* pl

Note that past tense in HAVE, BELIEVE and BEREAVE have consistently *Vfd* whereas past participles have the *VuV* pattern before final coronal. The lexical determination is not however total. In corpart, which has spellings for the noun HEAD with consistent *VuVd* we find one example of *hal-iheafdet* WHOLE-HEADED. For *pēofod* ALTAR, we find both *peoued* and *peofdes* pl as reflexes of the Old English paradigm, again with *Vfd* versus *VuVd*.

---

[2] With two very rare exceptions that we know of, for which see Appendix, LAEME text edincmbt (North Riding Yorks) C14a (and cf. §6) and text titusswt (south west midland mixed language) C13a2. The Appendix is to be found as supplementary material at http://www.philsoc.org.uk/transactions.asp.

[3] Most of the LAEME texts are from areas different from those where West-Saxon was the dominant dialect in the Old English period. Most handbook paradigms of Old English are based on West-Saxon, but in HAVE and LIVE, the morphology across the Old English dialects appears to have been the same, so our observations about their reflexes in early Middle English are non-problematic. A key to the LAEME filenames giving their text numbers, from which may then be found their manuscript repository details, is in LAEME, Main Page, Documents, Text Keys. Alternatively, the filename may be typed into the Index of Sources search panel with the filename box checked to find the full Index entry for each.

[4] For numbers of attestations, see the relevant listings under the LAEME filenames bod34t and corpart in the Appendix and cf. also the listing at §5.1.1.

This pattern is not confined to AB language, or even to those SW Midlands texts of *Ancrene Riwle* and the Katherine Group that share some of its characteristics. LAEME CTT shows that the use of <u/v> intervocalically and <f> before an immediately following consonant (especially <d>) is widespread across the country and across a considerable time span. What is more, most of the non-AB texts with this usage have many more examples than Corpus does of the contrast between *VfC* and *VuV* within the same lexeme. For <fd> alone, of the 167 tagged texts in the LAEME CTT, 59 contain no examples at all of reflexes of OE *-fd-* words. Of the other 108 texts that contain one or more of the relevant lexemes, 45 show <fd> spellings. (This excludes *The Ormulum*, for which see §3.1.) Only late in the period covered by LAEME (late 13th and early 14th century) does the phenomenon seem to be less frequently evidenced, while the LAEME texts localised in the North East Midlands (most of which are in fact late in the period) seem not to employ it at all.

1.2 Initial commentary

Writing about AB language, as evidenced in Oxford Bodleian Library, Bodley 34, D'Ardenne (1961: 175) notices this pattern and says:

> *u* was also employed for voiced *f* [v]. This was normal medially before vowels, where such spellings as *hafeð* M [St Margaret] f. 18v, *ufel* K [St Katharine] 239, are rare and do not occur in J [St Julienne]. Initial *u* is fairly frequent, as in *ueat*. In AB the inconvenience of this overworking of *u* was lessened by the retention of medial *f* before consonants (or the employment of *ue*): thus *deofles deoueles* (R *deoules*); *hefde* (very rarely *heuede*); *derfre* (R *derure*). *froure* is, however, always so written, perhaps with orthographic dissimilation.

D'Ardenne's notion of purely orthographic 'convenience' is shown by her own examples (especially invariant *froure* with neither 'retention of medial *f*' nor 'employment of *ue*') not to be true for all following consonants. She does not explain what she means by 'employment of *ue*', but the use of italics here and in her 'retention of medial *f*' suggests she thinks that <e> after <u> in these spellings is diacritic for voice and does not indicate a syllabic.[5] 'Retention of medial *f*', however, appears for d'Ardenne to indicate 'voiced *f* [v]'. Given the evidence, which we will set out in §5 and the Appendix (see fn. 2), we do not believe this. Rather, it seems clear that <ue> indicates [ve][6] as it must do in the reflexes of original disyllables like OE *hēafod* and *pēofod*. In fact, we think that the system (including <f> before consonants) is phonologically representational.

1.3 Our enquiry

The primary interest of this paper, as the title suggests, is in the plausibility of the realisation of <fd> sequences in Middle English as [fd]. All the data so far cited shows heterosyllabic <f#d> with the syllable boundaries being either inflectional (e.g. *hefde*) or stem internal (e.g. *peofdes*). We assume that by this date the word LADY has become fully demotivated as a compound, so that *leafdi* also falls into this category. It appears from the small early Middle English data set so far presented that, whatever may have been the case with medial heterosyllabic [fd], final [fd] is avoided, with reflexes of e.g. OE *hæfd*, *lifd* regularly attracting an epenthetic [e] between the two consonants and the change of <f> to <u>.

A secondary interest, following d'Ardenne's (1961) observation, is the other non-initial sequences of voiced consonants after <f>, viz: reflexes of OE medial <fn>, <fl>, <fr>. Given the

[5] Making the <u> visually intervocalic might be thought to give the added advantage of ensuring that it is immediately read as consonantal rather than vocalic as the second element of a diphthong. But this can hardly be taken as a systematic scribal strategy, since with native speakers and readers context will always give enough clues for correct reading and in any case *froure* does not trigger the insertion of <e>.

[6] For our use of [e] for the neutralised weak vowel rather than [ə] see Lass 2009.

presence of *froure* (as opposed to **frofre*) as quoted by d'Ardenne, we seek to establish whether the sonority of the consonant following the fricative affects its realisation.

2 Historical background

In spite of the fact that the use of <f> for [f] and <u/v> for [v] would have been familiar to all scribes from their knowledge and use of Latin, it seems that in the writing of Old English this possible distinction was almost never utilised.[7] In relation to the difficulty of reconstructing initial fricative voicing pre-Conquest, Minkova (2011: 47) cites the best known example, *uif* for FIVE, but points out its extreme rarity: 'There are 3 <u-> forms in the DOE corpus vs 865 <f-> forms'. There is also one instance of <u> for [v] medially in *Beowulf*: *hliuade* IT TOWERED (line 1799) beside *hlifade* (line 1898). Apart from such very rare examples, the voiced and voiceless allophones of /f/ appear not to be distinguished in Old English orthography. Early Middle English differs therefore from Old English in having, using and beginning to regularise a clear mechanism for distinguishing between voiceless [f] and voiced [v]. Where a system for the most part adopts this new mechanism for written English, and regularly has <u> in intervocalic contexts (which were unequivocally [v]), it requires explanation when <f> rather than <u> regularly appears in other voiced environments (where we might also expect [v]).

2.1 The main views on Old English fricative voicing

The distribution of <f> and <u/v> shown in §1.1 (and to be further illustrated in §5 and the Appendix (see fn. 2)) is not what would be expected according to the received wisdom concerning fricative voicing in Old English. The standard view is that fricatives were voiceless initially and finally and voiced in voiced surroundings except when geminate (Campbell 1959: §50 (1); Hogg 1992: §7.54): so *fæder* FATHER [fæder], *wīf* WOMAN [wi:f] versus *lǣfan* LEAVE, REMAIN [læ:vɑn] and *hēafod* HEAD [hæɑvod], but *cyssan* [kyssɑn], *wlæffian* MUMBLE [wlæffiɑn]. Thus (apart from geminates) voicing happened intervocalically; but 'voiced surroundings' also included adjacent voiced consonants, hence *ceorfan* CARVE [tʃĕorvɑn], *wulfas* WOLVES [wulvɑs], *fæþm* FATHOM [fæðm], *bosm* BOSOM [bozm]. Luick (1914–41: §639) claims that this complementarity failed in unstressed syllables, thus accounting for forms like *strength* (< *strɑng-i-θu). He himself points out, however, that this makes problematic the voicing in *clǣnsian* CLEANSE: [klæ:nziɑn] rather than *[klæ:nsiɑn]. The latter is what one would expect from *[klɑ:n-i-s-o:-jɑn] with failure of intervocalic voicing in unstressed syllable. The medial fricatives, it is supposed, would have voiced at some stage before attested Old English. It is conventionally assumed that the syncope of the weak Class 1 past tense marker would have happened after this voicing. Thus the past tense of *lǣfan*, *lǣfde* would have been pronounced [læ:vde]. The argument for this is that if syncope had preceded voicing, the [f] would have caused the following [d] to assimilate and devoice, as did indeed happen with the geminate fricatives e.g. *cyssan, cyste* KISSED.

Fulk (2001) gives a detailed account of the literature on Old English fricative voicing. In connection with the chronology of voicing and past tense syncope he cites (2001: 59–60) Brunner's[8] counterproposal to Luick's, namely that the syncope came *before* the voicing. This claim was to accommodate apparent exceptions to Luick's view (including CLEANSE). Brunner is then forced to explain the (supposed) voicing in *lǣfde* as being analogical to the intervocalic voicing in the infinitive *lǣfan*.

There is a third position, deriving from our observation of the early Middle English evidence in §1 and assuming it to be phonologically representational, i.e. [fd]:
(a) that the syncope predated the voicing as Brunner claimed;

[7] For the change of Classical Latin [w] (spelled 'u/v') > [v] (via [β]) in the Gallo-Roman period (C5–C9) in France, see Pope 1934: §§186, 189. The timing of this change in Anglo-Latin may have bearing on why Old English shows such little evidence of <u> for allophonic [v].
[8] Brunner1965: §200 Anm., §203 Anm.

(b) that the voicing was regular intervocalically (i.e. where syncope did *not* occur);
(c) when syncope did occur, and as a result a voiced consonant immediately *preceded* the fricative, the fricative voiced (hence CLEANSE);
(d) when syncope occurred and as a result a voiced consonant immediately *followed* the fricative, the voicing of the fricative was variable. Here we differ from Brunner for whom voicing in voiced environments was categorical.

There are four patterns that include medial fricatives (in what follows C = voiced non-fricative consonant, F = fricative, V = vowel): (i) VFVC in e.g. *ihaued*; (ii) VCFV, in e.g. *clensen*; (iii) VFCV in e.g. *hefde*, *efne*; (iv) VCFCV. Type (iv) is rare and only involves liquids, e.g. *culfre* DOVE, *derfre* MORE SECRET.

The third position above allows for the pronunciation [læ:fde]/[lɛ:fde] beside [læ:vde]/[lɛ:vde] for reflexes of OE (*be*)*lǣfde* LEAVE, which would match the early Middle English spelling evidence. It would also create a pathway for the later development to *left(e)* with the choice of the [t] allomorph for weak past tense being variably preferred over the [d] allomorph (see §2.2.2), cf. PDE *bereaved* versus *bereft*.

If, conversely, the syncope were taken to post-date the voicing of fricatives, the only other explanation for the early Middle English evidence would be a subsequent devoicing. This might occur at constituent edges: all the examples are both syllable and morpheme final. The first hypothesis would give heterosyllabic [f#d] + V very simply this way: [fe#d] + V > [f#d] +V by prevoicing syncope. The second would give it this way: [fe#d] +V > [ve#d] +V by voicing > [v#d] +V by postvoicing syncope > [f#d] + V by syllable final devoicing.[9] Variable voicing would also allow for phonetically problematic final [fd] in the past participles *hafd*, *lifd* mainly to be realised as [vd] which then attracted an epenthetic vowel before the syllabic sonorant, as evidenced by the bulk of the early Middle English evidence (see further §5.4.2.1).

2.2 Early Middle English situation

2.2.1 Phonemicisation

Much of the discourse about Old English fricatives is centred on the chronology of the phonemicisation of the voiced/voiceless contrast (see e.g. Fulk 2001, 2002; Minkova 2011). It is usually assumed to have happened post Old English at the time when voiceless and voiced fricatives, mostly from Post-Conquest French loans, could appear contrastively in initial position.[10] This opened the way for <f> and <u/v> to be adopted contrastively in medial positions. Middle English made little use of the letter 'z' and there was never a generally adopted means to differentiate the voiced and voiceless dentals either. But <f> and <u/v> *were* used contrastively, and increasingly systematically, from early in the Middle English period.

2.2.2 The verbal paradigms

As we have seen in §1, the Class 3 weak verbs *habban* and *libban* had only syncopated past tense and past participle in Old English apart from some late West-Saxon examples of *hafed* for HAD past

[9] In the case of the past tense of HAVE the [fd] must have come about by this second pathway with entry point at [vd]. For a possible pre-OE reconstruction of the HAVE paradigm see Hogg & Fulk (2011: §6.124). In OE, the root final fricative in this verb was [v] via labiodentalisation of earlier ***β**. This then led to gradual merger with [v] from the subsequent medial fricative voicing as discussed here, except (presumably) where it devoiced syllable final to give early Middle English [fd]. (See further CoNE, The CC, ((LD)) and ((MFV)).)

[10] For [f] and [v] at least, and minimally [s] and [z]. There must also have been at least some phonemicisation of the fricatives in those dialects that had initial fricative voicing (see further CoNE, The CC, ((IFV)) (Initial Fricative Voicing) and for a fuller discussion Lass (1992: §2.4.1.1). We do not address the matter of whether there was phonemicisation in Old English itself, as is suggested (but not demonstrated) by Bammesburger 1988.

participle.[11] For a summary of the patterns of syncope or lack of it in Class 1 and 2 verbs in Old English see Laing (2009: 248). In general, Class 2 verbs showed little or no syncope in Old English and Class 1 verbs showed it under well-prescribed phonological conditions. By early Middle English this pattern had begun to change. For a summary see Laing (2009: 252–253). Kastovsky (1996: 29–30) talks about a 'restructuring' of the verb system between Old English and Modern English causing a radical shift in category distinctions. This shift was beginning to take place during Middle English. For Class 3, Wright (1928: 429) observes: 'In ME. the preterite and past participle **lived(e)** (OE. **lifde**), **ylived** (OE. **gelifd**) beside the preterite **livẹde**[12] were new formations after the analogy of the second class of verbs'. With general remodelling of the verb paradigms in progress, it is not therefore surprising in early Middle English to find both syncope and lack of syncope in the same verb class or even in the same lexeme in a given text language. Where this affects the set with root final fricatives we find contrasting spellings in <f> and <u/v> and an allophonic split made visible. This same variability with respect to syncopation applies to nouns: *heued*, *hefdes*, *deuel*, *defles.*

Where syncopated forms prevail, variably or otherwise, the question of voice becomes relevant. In Old English there were two conditioned allomorphs for the past tense and past participle marker – [d] and [t], [t] being triggered by a voiceless root-final segment, e.g. *cēpte* KEPT, *cyste* KISSED, *brōhte* BROUGHT. In Middle English one of two things could happen: non-syncopated variants could arise by analogy, or the [t] form could be extended to types that did not previously have it. The choice of past marker is no longer solely triggered by a voiceless root final but can occur after voiced labials and coronals including coronal clusters. Wright (1928: §422) summarises: 'When the stem ended in **v**, **l**, **m**, **n**, or **nd**, **ld**, **rd** the preterite and past participle generally had **t** in ME., as **lēven** *to leave*, **lefte**, **yleft** beside **ylẹ̄ved**; and similarly **clẹ̄ven** *to cleave*. **fẹ̄len**, **felte** and **yfelt**; l**ẹ̄nen** *to lend*, **lente, ylent**; **senden**, **sente**, **ysent**; and similarly **benden**, **blenden**, **wenden**. **bīlden**, **bilte**, **ybilt**; **girden**, **girte**, **ygirt**'. Mossé (1952: 75 note IV) spells out the phonetic implications for fricative-final roots explicitly: '...*v* devoiced to *f* and *z* to *s*: *lẹ̄ven* 'to leave' (*lefte*), *bilẹ̄ven* 'to believe' (*bilefte*), *clẹ̄ven* 'to cleave to, to cling' (*clefte*), *lōsen* [z] 'to lose' (*lost*)'.

Mossé is clear that the unmotivated adoption of the [t] allomorph in these categories caused the preceding voiced fricatives to assimilate. In the case of [z] this also required syncope, because there would be no possible contexts in verbal paradigms for OE *-sd-*, which had already assimilated in OE to *-st-* [st] (*cyste* not **cysde* KISSED). In the case of [ð], OE *-ðd-* was rare and variably had already assimilated in Old English to *-dd-* [dd] (cf. *cyðde*, *cydde*). The only fricative plus [d] that occurred commonly in Old English was *-fd-*. We suggest that rather than adoption of the [t] allomorph triggering devoicing in the cases above, it is possible that the variable survival of root-final [f] (rather than [v]) triggered devoicing of [d] to [t] by progressive assimilation (see §5.5.2).

2.2.3 The other voiced consonants that follow OE <f>

Up to now we have dealt only with the OE medial <fd> sequence and its early Middle English reflexes exemplified in §1. In what follows (in §4 onwards) we examine also the other medial <f> sequences, <fn>, <fl>, <fr>. First we establish some restrictions to the present enquiry.

[11] DOE lists a number of other unsyncopated forms labelled 'xii'. We do not consider here unique forms marked in DOE with the annotations 'xii' and 'xiii' (for C12 and C13) because there is overlap in these cases with texts appearing in LAEME (ca 1150-1325).

[12] Wright (1928: 153) explains that 'the medial **e** in preterites like **havẹde** (OE. **hæfde**), **livẹde** (OE. **lifde**) was never pronounced in the spoken language'. He presents no evidence for this view that <e> was in these circumstances a diacritic and it seems to go counter to his explanation here that the <e> was from analogy to the Class 2 verbs, which lacked syncope of the vowel. Cf. d'Ardenne's (1961: 175) 'employment of *ue*', cited in §1.2 and see further §5.4.2.1 below.

3 Restrictions to our enquiry

3.1 Orm

Orm's work is often the first place to look for information about early Middle English phonology. As is well known, he marks short vowels by doubling the consonant graph following a short vowel, except in open syllables where this might imply a geminate. Unfortunately for our enquiry he does not systematise the [f], [v] contrast. He writes <v> rarely and probably accidentally (e.g. *serrvenn* line 506 beside *serrfenn* line 475 TO SERVE). Elsewhere he has spellings only in <f>: e.g. *haffde* HAD, *hæfedd* HEAD, *lafdiȝ* LADY, *ifell* EVIL, *defell* DEVIL, *næfre* NEVER, *efenn* EVENING, *laferrd* LORD, *sellfen*n SELF. In any other early Middle English writing system, the presence of <ff> would suggest voicelessness. In Orm's case it could as easily imply [v] as [f]. In these circumstances, we will take no further account of Orm as an information source.

3.2 Compounds and derivations

We also exclude compounds and words with transparent derivational suffixes. Even where the fricative is followed by a voiced consonant, compounds like LIFEDAY or LOVEBOOK are likely to behave more like two separate words than simplices do, because the second element will almost certainly have secondary stress. We would expect therefore the labial fricative to show final voicelessness in any case. The same may go to a lesser extent for derivations, especially heavy stemmed ones like -MOST or OE *-lāc*. In the case of -DOM (cf PDE *sheriffdom*, *serfdom*), -NESS, -LY etc the information on preceding fricative voicing could well be of great interest and relevance (see §1.2 above), but for reasons of space we also omit from our dataset for this initial enquiry derivations like FORGIVENESS, LOVELY.

3.3. Types (i), (ii) and (iv) identified in §2.1

Medial fricatives behave differently in different contexts and we assume that reflexes of Old English intervocalic fricatives were always voiced in stressed syllables. The early Middle English evidence very strongly supports this with apparent exceptions primarily only in copied Old English texts or those that have Old English textual connections and where we might assume therefore that they are orthographic survivals and need not imply [f]. The only other exceptions are those that are possibly deliberately archaistic like Laȝamon.[13] So we do not include in our data sets early Middle English reflexes of Old English type (i) with original VFV such as *lufian* TO LOVE, which are not strictly comparable with the VFV types that arise in Middle English by insertion of an epenthetic vowel.

Type (ii) VCFV in words like SELF and CARVE seem to go largely with the intervocalic voicing pattern with the same restrictions as to Old English influence in the spelling of [v] as *f*, so they are also excluded, as are type (iv) the rare CFCV examples.

4 Type (iii) identified in §2.1 – our topic of enquiry

The type partially illustrated in §1 is the VFCV pattern, for which the first observations were:
(a) <f> rather than <u> is used for the medial labial fricative;
(b) this usage shows a regular complementarity, with <u> rather than <f> being employed in the same writing systems for the type (i) VFVC pattern with epenthetic vowel after the labial fricative.

We will exemplify this more fully with relevant samples from LAEME CTT 'text dictionaries', that is the inventories of forms derived from the individual tagged texts. We include in the body of the paper partial text dictionaries from eight text languages exemplifying different times and regions covered by the LAEME CTT. The Appendix (see fn. 2) shows the relevant data collected from *all* the LAEME text languages for wider comparison.

[13] On Laȝamon's use of archaic language see Stanley 1969.

4.1 Phonological implications of medial <fd>

The claim that [fd] could be a well-formed sequence might immediately raise phonotactic objections. One might expect the sequence to assimilate. Regressive assimiliation would give voicing of [f] to [v] and [vd] as the outcome. Progressive assimiliation would give devoicing of [d] to [t] and [ft] as the outcome. The early Middle English evidence suggests that both these processes did in fact happen and that there was a great deal of variation (as one might expect) through time and across space. But the evidence also suggests that for a certain period of time and at least in some places [fd] was one possible variant.

The vast majority of the early Middle English <fd> sequences are heterosyllabic. Although there are no PDE direct equivalents to the proposed early Middle English inflectional or stem internal [f#d] examples, the PDE derivational forms *fiefdom* and *serfdom*, with morpheme final [f] and morpheme initial [d], are phonotactically similar to Old English verb plus suffix, as in *hæfde*, stem internal *peofdes* or demotivated compound *leafdi*. The sequence is also common in compounds (*half-done*, *self-denying*, *wolf(-)dog*, *leaf-drift*) including place-names (Clifden, Wharfdale). Given such forms we can say that [f#d] is not an isolate.

Assuming persistence of syllable final [f], we think syllable initial [d] following it has a simple phonetic explanation. In any initial-stressed foot (including monosyllabic or 'degenerate' feet), airflow through the vocal tract decreases or weakens toward the end in a falling intensity contour, and this may lead to at least partial devoicing. Voiced stops become less voiced as the sonority-curve falls. But as long as there is no aspiration, the stop can still be heard as being at the [d] end of the cline. That is, voice onset time is clinal;[14] but in Old and Middle English, the scribes' writing systems take voiced/voiceless as a binary opposition. As in PDE, any coronal stop *has* to be written either 't' or 'd'; where we find *-fd-* in our data, we assume that the scribes perceived a marginally voiced stop or a voiceless but unaspirated stop (which would be a possible end-stage of sonority decrease). Having to choose either <t> or <d> they chose the voiced letter as the closer representation of the phonetic realisation.

4.2. A sonority hierarchy?

The presence of *froure* (§1.2) leads us to a further observation. Even though the VFCV pattern occurs in a very large number of text languages (see §§5.1.3 ff. and Appendix (see fn. 2)), the different consonants seem to provoke differential use of <u> or <f>, presumably indicating voice or voicelessness respectively. This does not appear to be arbitrary. An observational overview suggests that frequency of occurrence of voicing may be tied to the sonority of the following consonant. The commonest sonority ranking in the literature has the following relevant sub-sequence:

voiced stops > nasals > liquids (order: lateral > rhotics)

(Cf. Vennemann 1988: 9; Murray 1991: 203; Goblirsch 2005: 38–39).

The rationale for this hierarchy is the fact that non-nasal stops have a stricture of full closure, nasals have full closure but a secondary egressive airstream through the nostrils, laterals have an open central vocal tract with closure or approximation against the teeth and rhotics may have approximant, tap or other weak strictures. In our systems, exemplified in §5 and the Appendix (see fn. 2), voicing appears to be most resisted where sonority is lowest and to follow the hierarchy

[14] Since we are concerned with scribes' self-perception, we assume the cline does not involve 'spread glottis' or any laryngeal feature except voice onset time: cf. Trask (1996, s.v. voice onset time). Late voice onset time allows a period where non-vibrating air passing through the glottis leaves a period of glottal friction, i.e. voiceless stops would be aspirated. Early voice onset time, where vocal-fold vibration is perceptible for a shorter time, or even simultaneous with stop-release, would result in non-aspiration, which could be perceived as voice.

shown above with [d] the most resistant and [n] the next most resistant followed by [l] and [r] in that order. In the case of corpart, voicing in the VFC pattern only occurs before the rhotic, *froure* (§1.2 and §5.1.1).

4.3. Phonological implications of final [fd]

There may be seen to be a greater difficulty if the <fd> sequence is found word final, as in the Old English past participles *hefd* and *lifd* cited in §1 above and in the Middle English past tense systems of the data in §§5.1–5.3 and §6.1 below. We would then be implying that final [fd]# is a well-formed coda cluster. We argue, however, there is a reasonable phonetic and perceptual explanation for the writing <fd> even in coda position. Final <fd> is in fact rare in the LAEME CTT compared to medial <fd>. Of the 46 texts that show <fd> spellings, only 12 have examples in final position. Of these, eight texts have only one example of final <fd>[15]; one text has two examples,[16] one has three examples[17] and one has four examples.[18] This leaves only one text (edincmbt – see §6.1) with more than a marginal number – viz. 35 instances.

The account in §4.1 would permit [fd] (if rarely) in absolute final position, especially if the [d] was *in the process of* devoicing by progressive assimilation (§5.6.2). The perceptibility of sonority-decrease may be more noticeable in continuous speech (or in writing closely based on it) than in citation forms. The perception may in fact vary as indeed the writing systems of the phenomenon in early Middle English often do. Whether the final <t> or <d> is followed by a word beginning with a vowel or a consonant will also make a difference to the perception of it as voiced or voiceless. A cline of renditions and perceptions is possible and there is no reason to suppose that this cline was not perceptible to writers of early Middle English.

4.4 Development of fricativeless forms of HAD

Forms of HAD without any medial fricative begin to appear in the very earliest Middle English (see §5.5.1 and §5.3.1 below). How does the fricativeless form develop from OE *hæfd*(*e*)? The earliest attestations all have the shape *hVdde*. This looks like a simple assimilation of [fd] to [dd]. Presumably in this case, the assimilation is by internal sandhi; the [f] and [d] are on either side of a morpheme boundary (see further CoNE, The CC, ((IS)) (Internal sandhi) and ((CA)) (Cluster assimilation).

The other words that eventually lose the fricative are HEAD and LADY. There are no examples in the entire LAEME CTT of *lady* type spellings without fricative.[19] The only examples of fricativeless HEAD in LAEME CTT are one example each of *hed* and *hede* in cotvespcmat, a version of *Cursor Mundi* placed in the West Riding of Yorkshire and belonging to sometime in C14. Judging from their entries in both MED and OED, the loss of fricative in these words was a C14 development, which spread very quickly.[20] This makes the early fricativeless instances of *had*(*de*), *hed*(*de*) and their much more gradual spread through Middle English all the more remarkable.[21] This is a particularly good example of change being sensitive to lexical identity. It would be interesting to see, with further investigation, whether the forward looking cases were also auxiliaries and whether therefore prosodic prominence as well as lexical identity played a role in fricative loss.[22]

---

[15] See Appendix: adde6at, cotvespcmat, caiusart, cccc8t, layamonAat, layamonAbt, winchestert, worcthgrglt.
[16] See Appendix: edincmat.
[17] See Appendix and §5.3.1: vvat.
[18] See Appendix: layamonBOt.
[19] Though DOE lists one example of *hlædige* labelled Ch 1465, xiii.
[20] See eLALME, Dot Maps item 161 HEAD and item 182 LADY.
[21] See eLALME, Dot Map item 160-60 (south only) HAD pt and for comparison cf. LAEME, Feature Maps, the set for HAD pt.
[22] We owe this observation to Donka Minkova.

5. Illustrative writing systems

The subsets of the LAEME text dictionaries shown are all from linguistically homogeneous text languages that are localised. Beneath each listing we provide a table summarising the findings.[23] The listings include reflexes of Old English VFC(V) types where V stands for vowel, F now stands for labial fricative only (both voiced and voiceless), and C still indicates a voiced non-fricative consonant. For these data we include words that show the VFC pattern in any of their morphology in Old English e.g. EVIL would have the VFVC pattern in nominative singular (*yfel*) but VFCV in oblique cases (e.g. *yflum*). We have included also 3rd sg present indicative of HAVE. Here forms such as *hafð* where the following final fricative consonant is voiceless and where the <f> presumably stands unequivocally for [f] may serve as a control for the VFC(V) forms where the following consonant is voiced. In these systems we make the following assumptions: written <d> represents [d], written <t> represents [t], written <u>, <v>, <w>, <p> as reflexes of OE <f> represent [v]. We assume that intervocalic written <f> is in most cases an Old English survival and probably represents [v] (other than in the North, see §6). As indicated in the last sentence of §1.2 our default position is that in early Middle English written <f> followed by any consonant represents [f], with rare final <fd> being subject to our observations in §4.3. In cases where there is also survival of intervocalic <f> this assumption is clearly questionable and is marked with a query in the summary table.

In these listings, when LAEME lexels (lexical elements, i.e. lemmata) appear multiple times with different grammels (grammatical elements, i.e. grammatical tags) they are amalgamated, e.g. the category LADY includes sg and pl forms. Identical forms belonging to the amalgamated lexels are also merged and token numbers given after each contrasting form.[24] Lexels are given in small caps when they are modern glosses and in the format OE plus italic when they are identified by an Old English etymon. The manuscript forms which follow are in lower case and are given in order of frequency. Leading and trailing hyphens indicate presence of a preceding or following element in the manuscript. We highlight the <fd> forms by bold face, <fn> forms by bold italic, the <fl> forms by plain italic underlined, the <fr> forms by plain italic. Any <u> + voiced consonant forms are indicated by plain underlined. All spellings of the pattern VFVC are left unmarked. Expansions of abbreviations are in italic when the form is in plain text or in Roman when the form is in italic. Superscript letters in the manuscript, where they do not imply abbreviation, are retained. Forms beginning with majuscule (capital) letters in the manuscript are amalgamated with those beginning with minuscule (plain text) letters.

5.1. LAEME CTT corpart – the A of AB language

The LAEME sample is taken from the text of *Ancrene Wisse* in Cambridge, Corpus Christi College 402. This subset of the corpart text dictionary shows a SW Midlands system and more fully illustrates the observation that we outlined in §1.

5.1.1 The text dictionary subset

corpart (Ludlow, S Salop) C13a2

BEHOVE sg past	**bihofde 1**
BELIEVE past part	ileuet 1
OE *berēafian* sg past	**bireafde 1**
DEVIL	deouel 4; gen sg *deofles 9*

[23] We do not attempt any further quantitative analysis.

[24] The text dictionary subsets of the illustrative systems given in the body of the text are set out in full (in LAEME internal format), along with the subsets of all the other LAEME text dictionaries, in the Appendix (see fn. 2). An explanation of LAEME internal format is provided there.

EVEN adj and adv	***efne 2***
EVEN(ING)	euen(-) 4
EVEN vb 3sg pres ind	eueneð 2
EVENE (NATURE)	euene 1
EVER	eauer 50 eau*er* 12
EVIL adj, adv, noun	uuel 30 uuele 9 vuel 2; pl uueles 1
OE *frōfor*	froure 5
OE *frōfrian* pres stem	frour- 7
HAVE 3sg pres ind	haueð 30 habbeð 1
HAVE 1/3sg past	**hefde 11**
HAVE 2 sg past	**hefdest 3**
HAVE pl past	**hefden 4**
HAVENOT 3sg past	**nefde 1**
HEAD	heaued 11 heued 1
HEADED adj	**-heafdet 1**
LADY	**leafdi 38 leafdi- 3**; pl **leafdis 1**
NEVER	neauer 11 neau*er* 9
RAVEN	reuen 1; gen sg reauenes 1
OE *stefn*	steuene 5
OE *wēofod*	peoued 4; pl **peofdes 1**

Table 1: Summary

System	Region	Date	F + d	F + n	F + l	F + r	VFVC
corpart	South West Midland	C13a2	100% [f] (N=65)	100% [f] (N=2)	100% [f] (N=9)	100% [v] (N=12)	100% [v] (N=189)

5.1.2 Commentary

There are no intervocalic <f> forms in this sample. Intervocalically, *u* for [v] is categorical. This is true for contexts where the vowel following the fricative is historic. But it is also evident that an unetymological <e> is frequently utilised producing the same environment, e.g. *steuene* VOICE (< OE *stefn*), *re*(*a*)*uen(-)* RAVEN (< OE *hrefn*) and (*n*)*eauer* (N)EVER (< OE (*n*)*ǣfre*).[25] We will return to the matter of unetymological <e> in §5.4.2.1.

It is clear that in this text language the VFCV pattern versus the VFVC pattern is largely lexeme specific. Spellings with <f> + voiced consonant are invariant before <d> [d], <n> [n] and <l> [l] (see *efne* aj and av EVEN (< OE *efen*, *efn*(*e*)) and the syncopated variants of DEVIL). It is perhaps of interest that the system differentiates *efne* from the noun *euen* EVENING (< OE *ǣfen*). Only the reflexes of OE *frōfor*, *frēfrian* COMFORT, show voicing of the fricative before the following consonant <r> [r] and this too is invariant, as d'Ardenne pointed out and shows the first stage of the sonority hierarchy proposed in §4.2.

5.2. LAEME CTT worcthgrglt – Worcester Tremulous Hand

The LAEME tagged sample is all the English written by the Worcester Tremulous scribe in his version of Ælfric's *Grammar and Glossary* in Worcester Cathedral, Chapter Library F 174. This scribe glossed a large number of Old English texts with both Latin and Middle English glosses. He also copied and partially translated into his own Worcester usage of early C13, longer Old English texts of which the *Grammar and Glossary* is one. This subset of the worcthgrglt text dictionary shows a precursor of the VFCV system illustrated in §5.1 above from almost the same area.

[25] Donka Minkova (pers. comm.) points out that these Old English monosyllabic forms appear with an epenthetic/parasitic <e> in late Old English.

5.2.1 The text dictionary subset

worcthgrglt (Worcester, Worcs) *C13a[26]

OE *adrǣfan* sg past	**adrefde 1 -adrefde 1**
DEVIL	deofel- 1
EVEN adj and adv	-euen- 2 euen- 1
EVEN(ING)	æfen 2 euen 1 euen- 1
EVER	*æfre 18 efre 3 æffre 2 effre 2* euer 2 euere 2 *æfræ 1*
EVIL adj, adv, noun	vfele 4 ufele 2 ufel 1 vfel[] 1 ufel- 1
OE *frōfor*	frofer- 1 frouer 1
HAVE 3sg pres ind	haueþ 22 **hafþ 13 hæfþ 5** heueþ 1 haue[] 1
HAVE past part	**ihæfd 1 ihæfþ [sic] 1**
HAVE 1/3sg past	**hæfde 3 hefde 1**
HAVENOT pl past	**nefden 1**
HEAD noun	heaued 3 -heaued 1; gen sg **heafdes 1**
HEAD adj	heafed 1 heofod 1 heaued 1
HEADED adj	**-heafded 1**
NEVER	*næfre 7 nefre 1*
RAVEN	gen sg ***refnes 1***
OE *stefn*	***stefne 5*** ste*m*ne 2 stemne 1

Table 2: Summary

System	Region	Date	F + d	F + n	F + l	F + r	VFVC
worcthgrglt	South West Midland	*C13a	?100% [f] (N=10)	?100% [f] (N=6)	N/A (N=0)	?100% [f] (N=34) <f> = 30 <ff> = 4	100% [v] (N=54) <f> = 15 <u>= 39

5.2.2 Commentary

This sample shows variable survival of Old English intervocalic <f> alongside early Middle English intervocalic <u>. In VFC(V) contexts there is no sign of voicing, with <f> + C being invariant before <d>, <n> and <r>. In this sample there are no examples of <fl> but in the same scribe's text of the Worcester Fragments (LAEME worcthfragst) we find *deofles* (gen sg) and *deofle* (indirect object) DEVIL. Our control lexeme, 3rd sg present indicative of HAVE, clearly shows the VFC (here the C is voiceless) versus VFVC complementarity with *haueþ* beside *hæfþ*, *hafþ*. Given partial survival, however, of intervocalic <f>, it is hard to be sure that there was no voicing in the VFC(V) (with voiced C) contexts in this text language. Suggestive, however, are the spellings *effre* 2x, *æffre* 2x, *æffræ* 1x EVER (beside *efre* 3x, *æfre* 18x). Note also in worcthfragst *æffre* 2x (beside *efre* 9x and *æfre* 4x) and *næffre* NEVER 1x (beside *nefre* 8x), where <ff> would normally imply voicelessness as with original geminates. These <ff> spellings in this writing system seem frequent enough (16% of the examples) to be interesting.

[26] An asterisk preceding the date here and in other text dictionary subsets in the Appendix (see fn. 2) indicates that the Middle English text/copy goes back at one or more removes to an Old English version. Square brackets in the cited forms indicate lacunae in the manuscript text.

All other instances of medial <ff> in this scribe's work are for original geminates (e.g. *offrian* OFFER, *offrung* OFFERING) as are the vast majority of his other doubled consonants. The Tremulous Scribe, however, does use unetymological double consonants occasionally. Perhaps the most common reason for using them in Middle English in general (though far less systematically than Orm) is to indicate shortness of the preceding vowel. In this case, we know that the vowel in (N)EVER was long for Orm because he spells the words (*n*)*æfre*. He uses <æ> exclusively to represent [ɛ:] and his system would demand the spelling *(*n*)*effre* if the vowel had shortened. This does not of course mean that the vowel had not shortened via pre-cluster shortening in the Tremulous Scribe's usage on the other side of the country a few decades later, so <ff> in his system could conceivably mark a preceding short vowel rather than voicelessness.

5.3 LAEME CTT vvat – *Vices and Virtues*

The LAEME tagged sample is the output of Hand A of *Vices and Virtues* in London, British Library, Stowe 34, fols. 1r–22r, 31v–41v. This text is somewhat earlier than corpart and a similar date to the Old English influenced material written by the Worcester Tremulous scribe. It is localised in S Essex, the opposite side of the country from the previously discussed SW Midlands systems.

5.3.1 The text dictionary subset

vvat (SW Essex) C13a1

BEHOVE sg past	**behofd^{e} 1**
OE *belǣfan* sg past	**bileafde 1**
BELIEVE past part	**biliefde 1**
BELIEVE 1/3sg past	**beliefde 1 iliefde 1**
OE *berēafian* past part	bireaued 1
OE *berēafian* sg past	bereaued^{e} 1
DEVIL	dieuel 14 dieule 11 deuel 4 dieule*n* 1; gen sg dieules 12 deules 1; pl dieulen 2 dieule*n* 1
DEVILLY	dieuliche 1
EVENLY	emliche 1
EVER	æure 44 aure 11 eure 5 aur- 3 auer 2 æur- 1 eaure 1
EVIL adj, adv, noun	euele 27 euel 17; gen sg eueles 2; pl eueles 2
OE *frōfor*	froure 2
HAVE 3sg pres ind	**hafð 38** haueð 35 **hafþ 1** haued 1
HAVE past part	**ihafd 3**
HAVE 1/3sg past	hadde 26 **hafde 2**;
HAVE 2sg past	**hafdest 3** haddest 2
HAVE pl past	hadde*n* 3 hadde 1 **hafde*n* 1**
HAVENOT pl past	**nefden 1**
HAVENOT 1/3sg past	nadde 3 **nafde 1**
HEAD noun	heaued 5 **hafde 1**; pl **hafde 1**
HEAD adj	heued 6 heaued 5
LADY	**lafdi 5**; pl **lafdies 1**
LIVE 2sg past	liuedest 1
NEVER	næure 34 naure 13 neure 5 nauer 1 nauere 1
OE *stefn*	***stiefne 1***
UNBELIEVE past part	**unbiliefde 1**

Table 3: Summary

System	Region	Date	F + d	F + n	F + l	F + r	VFVC
vvat	Essex & London	C13a1	100% [f] (N=25)	100% [f] (N=1)	100% [v] (N=29)	100% [v] (N=119)	100% [v] (N=125)

5.3.2 Commentary

This text's system shows a distinct progression from that of corpart, as well as more variability. In spite of the geographical distance from corpart (on the opposite side of the country and in historically Saxon rather than Anglian territory) it treats the reflexes of VFC(V) in a similar way, at least variably. Unetymological VFVC forms are found in the same lexemes as in corpart but here they appear beside continuing fricative plus consonant variants, e.g. *nauer* NEVER beside *naure*. The system is therefore not lexeme specific, unlike that of corpart. The vvat system also clearly illustrates a progression in the voicing of [f] exemplifying the sonority hierarchy. Here both liquids, [l] as well as [r], trigger invariant voicing, e.g. *dieules* DEVILS as well as (*n*)*œure* (N)EVER and *froure* COMFORT. The nasal and obstruent [n] and [d] when immediately following the fricative still appear not to cause voicing: *stiefne* (< OE *stefn*) VOICE, *lafdi* (< OE *hlǣfdige*) LADY. There is no survival of intervocalic <f>, all VFVC variants (whether the vowel following the fricative is etymological or not) showing overt voicing with medial *u* spellings. The variants for past tense of HAVE are of great interest. The control lexeme 3sg present indicative of HAVE (with vowel + fricative + voiceless consonant environment) shows a mixture of <f> + C and <ue> + C spellings. For the past system, however, we have only <fd> varying with the innovative fricativeless *hadde* type (see §4.4 above). In this, vvat shows similarity with the even earlier East Midland text the final continuation of the Peterborough Chronicle (see §5.5 below).

5.4 LAEME CTT havelokt

The LAEME tagged sample is the whole of the text of *Havelok the Dane* in Oxford, Bodleian Library, Laud Misc 108, fols. 204r–219v, Hand C. This is a North East Midland system, half to three-quarters of a century later than that of corpart. This system shows none of the VFCV pattern that was so apparent in the SW Midlands. For the first time, however, we see the *-ft*(-) development which we have indicated with bold italic underlined.

5.4.1 The text dictionary subset

havelokt (W Norfolk) C14a1

OE *belǣfan* sg past	***bilefte 1***
DEVIL	deuel 3; gen sg deueles 1
EVER	euere 24 euer- 16 eu*er*e 11 eure 3 heuere 3 eu*er*- 2 heu*er*e 1 euer 1
EVIL adj, adv, noun	iuele 4 yuel 3 yuele 2 iuel 2
HAVE 3sg pres ind	haues 11 haueth 6 haued 2 hauet 1 haueþ 1
HAVE 1/3sg past	hauede 59 haued- 4 haue 1 haueden 1 haueden 1
HAVE pl past	haueden 13 haueden 7 aueden 1 hauede 1
HEAD noun	heued 13; pl heuedes 1
LADY	leuedi 6; pl leuedyes 1
OE *lǣfan* past part	leued 1
LIVE past part	liued 1

LIVE 3sg past	liuede 1
LIVE pl past	liuede 2 liueden 2
NEVER	neuere 24 neu*er*e 19 neure 6 neuer 1
OE *rēafian* past part	***reft* 4**
OE *rēafian* 3sg past	***refte* 3**
OE *rēafian* 2sg past	***reftes* 1**
OE *stefn*	steuene 1

Table 4: Summary

System	Region	Date	F + d	F + n	F + l	F + r	VFVC
havelokt	East Midland	C14a1	100% [f]+[t] (N=9)	N/A (N=0)	N/A (N=0)	100% [v] (N=9)	100% [v] (N=255)

5.4.2 Commentary

This system is from a linguistically more innovative area than the SW Midlands and is also much later than the systems already discussed. There is little survival of VFCV at all. There are a few examples in EVER and NEVER and these show voicing *eure* 3x, *neure* 6x beside other variants in VFVC. In spite of its much later date, this text shows no examples of the innovative fricativeless *had*(*de*) type for the past tense of HAVE that appeared in vvat. The only other survivals of original VFC are the *reft*, *refte*(*s*) spellings in the past system of the reflexes of OE *rēafian* alongside *bilefte* in the past tense of OE *belǣfan.* Here either continuing [f] has caused devoicing of the following [d] or the [t] allomorph of the weak past tense marker may have been chosen during early Middle English 'remodelling' and caused regressive assimilation (cf. §2.1). The rest of the data in this text language shows VFVC, with <u> indicating voiced fricative*,* either with etymological vowel after the fricative or with extensive non-etymological <e>, including in our control HAVE 3sg pres ind.

5.4.2.1 Excursus on non-etymological <e>

The source of non-etymological internal <e> in the past systems of HAVE and LIVE (*hæfd*(*e*), *lifd*(*e*) become *haued*(*e*), *liued*(*e*)) as being by analogy with those of the Class 2 weak verbs has already been mentioned in §1 and §2.2.2. D'Ardenne (cited in §1.2) appears to suggest the adoption of the spelling <u> + <e> elsewhere was purely orthographic (cf. Wright 1928: §153). In words such as *leuedy* (< OE *hlǣfdige*) LADY, *steuene* (< OE *stefn*) VOICE, (*n*)*euere* (< OE (*n*)*ǣfre*) (N)EVER there is no obvious analogical source. That the vowel was real, however, is evident from the PDE forms of (N)EVER and similar formations not evidenced in this particular text e.g. RAVEN. The source for the <e> in RAVEN and EVER was presumably a function of the syllabic sonorant (see CoNE, The CC, ((SCVE)) (Sonorant Cluster Vowel Epenthesis). The epenthesis in LADY seems to be *ex nihilo*, cf. the initial <e> before *sc* clusters in Spanish as in *escuela* (< Latin *scōla*). Given the systematic difference in some text languages between <fd> spellings with no epenthesis and <ued> spellings with overt fricative voicing, it may be worth noting that [v] has a higher sonority than [f] which may have encouraged epenthesis after voicing. In the entire LAEME CTT there are only three examples of the spelling <ud> with overt voicing before immediately following [d],[27] perhaps indicating that unsurprising co-voiced [vd] was possible but generally avoided.

[27] The three instances are geographically and temporally scattered: *haud* HAVE past participle, one each in edincmbt (City of York, C14a) and eglitelt (a text too short to localise but SW Midlands, C13a2-b1) and *haude* HAVE 3sg past tense, one in buryFft (W Norfolk C13b2). For their complete relevant subsystems see the Appendix (see fn. 2).

5.5. LAEME CTT petchront – Peterborough Chronicle

The LAEME tagged sample is the entire output of the scribe of the final post-Conquest continuation of the Peterborough version of the Anglo-Saxon Chronicle for the years 1132-1154. This text was written on fols. 88v–91v of Oxford, Bodleian Library, Laud Misc 636, apparently all in one go, and therefore (it is presumed) in 1154 or soon after. This puts it half to three-quarters of a century earlier than corpart (§5.1) but it is from the other side of the country in the linguistically more innovative East Midlands.

5.5.1 The text dictionary subset

petchront (Peterborough, Soke of Peterborough, Northants) 1154

BEHOVE sg past	be-houed 1
DEVIL	pl deoules 1
EVER	æure 3 æur- 3 **æfre 1**
EVERTE adv	æuert 1
EVIL adj, adv, noun	yuel 3 yfel 1 yuele 1 yfele 1
HAVE 3sg pres ind	haued [sic] 1
HAVE 1/3sg past	hadde 2 hedde 1 adde 1 **hafde 1**
HAVE pl past	hadden 3 **hefden 2 hæfden 1**
HEAD noun	hefed 1 hæued 1
LIVE 3sg past	liuede 1
NEVER	neure 4 næure 3
OE *rēafian* 3sg past	reuede 1 ræuede 1

Table 5: Summary

System	Region	Date	F + d	F + n	F + l	F + r	VFVC
petchront	East Midland	1154	?100% [f] (N=4)	N/A (N=0)	100% [v] (N=1)	100% [v] (N=13)	100% [v] (N=14) <f> = 3 <u> = 11

5.5.2 Commentary

In VFCV contexts, this early but innovative system already shows voicing not just of [fr] in e.g *neure*, but also of [fl] in *deoules*. There are no instances of [fn] words. Already this system shows *liuede* for past tense of LIVE. A conservative element is the variable survival of intervocalic *-f-* (*yfel* beside *yuel*), but variable survival of <fd> in the past tense of HAVE, this time alternating not with *heued* type but with the innovative fricativeless (*h*)*adde*, *hedde* type, puts this text in line with vvat (§5.3) from some 50 years later and rather further south geographically. As with the listing in §5.2.1 above, partial survival of intervocalic <f> means that we cannot be sure that there was no voicing in the VFCV (with voiced C) contexts in this text language.

5.6 LAEME CTT laud108at – *South English Legendary*

The LAEME tagged sample is part of the output of Hand A of *South English Legendary*, in Oxford, Bodleian Library, Laud Misc 108, fols. 1r–22r, 31v–41v.

5.6.1 The text dictionary subset

laud108at (W Oxon) C13b2-14a1

BEHEAD past part	bi-haueded 2
OE *belǣfan* 3sg past	**bi-lefde 10** ***bi-lefte 4*** bi-leuede 1
OE *belǣfan* pl past	**bi-lefden 2** ***bi-lefte 1*** ***bi-leften 1***
BELIEVE 3sg past	i-leuede 2 bi-leuede 1
BELIEVE pl past	**i-lefden 1**
DEVIL	deuel 18; gen sg deueles 5; pl deuelene 5 deuelen 1
EVEN adj and adv	euene 8
EVEN 3sg past	euenede 1
EVENING	eueningue 1
EVER	euere 47 euer- 31 euer 3 eu*er*- 3
EVIL adj, adv, noun	vuele 15 vuel 6 euele 2; pl vueles 1
HAVE 3sg pres ind	hath 39 haueth 9 hathþ 4 hauez 4 hat 1 hathz 1 hauet 1 hauit 1
HAVE past part	ihaued 1
HAVE 1/3sg past	hadde 113 hauede 2 had 1 hedde 1
HAVE 2sg past	haddest 5
HAVE pl past	hadden 28 hadde 4 hedde 1
HAVENOT 1/3sg past	nadde 18
HAVENOT pl past	nadden 7 nadde 1
HEAD	heued 18 heue 1 hued 1
LADY	leuedi 13 lauedi 2
OE *lǣfan* 3sg past	**lefde 4** ***lefte 1***
LIVE 3sg past	liuede 3
NEVER	neuere 31 neuer- 5 neuer 4

Table 6: Summary

System	Region	Date	F + d	F + n	F + l	F + r	VFVC
laud108at	South Central	C13b2-14a1	71% [f]+[d] 29% [f]+[t] (N=24)	N/A (N=0)	N/A (N=0)	N/A (N=0)	100% [v] (N=248)

5.6.2 Commentary

This text language is the work of Hand A of the same manuscript in which Hand C provides the text of *Havelok* exemplified above in §5.4. The dialects of the two scribes are not the same, scribe C writing in a form of language that belongs in W Norfolk and Hand A, contemporary with him, writing a form of language that belongs in the South Central part of England and localised in W Oxon. There are some similarities in their respective developments of the reflexes of our VFCV words. Both show extensive spread of the VFVC pattern, but where havelokt has no surviving <f> + C forms except innovative <ft> and only mininal <u> + C in (*n*)*eure*, laud108at shows more variability but only in a single lexeme. It has surviving <fd> forms beside <ft> and intervocalic <u> in the reflexes of OE (*be*)*lǣfan*. This lexically discrete survival is the only conservative element, with the VFVC pattern otherwise paramount other than in the past system of HAVE – which shows *hadde* throughout, except for *haued* 1x past participle and *hauede* 2x past tense. The fricativeless forms are completely absent from havelokt (§5.4.1).

The presence side by side of <fd> forms and <ft> forms in the reflexes of the past system of (*be*)*lǣfan*, gives support to the development of [t] by progressive assimilation as opposed to the

more commonly assumed regressive assimilation after otherwise random choice of the [t] allomorph of the past marker (§2.2.2).[28]

This combination of survival and development illustrates an interesting and perhaps surprising feature of the systems shown here and in the Appendix (see fn. 2): the systems do not appear to become uniformly more 'modern' as time progresses. The sometimes vast internal variation in realisations of reflexes of VFCV contexts shows that the early stages of a change there is both variation and movement backwards and forwards in the degree of modernness across the spatio-temporal arena we present in this paper. The next text illustrates the most modern development of our chosen set.

5.7 LAEME CTT digby86mapt

The LAEME tagged sample is the linguistically homogeneous majority of the output of the main scribe of Oxford, Bodleian Library, Digby 86. This is localisable and therefore mapped in LAEME. Five of the 22 early Middle English texts written by this same scribe are in mixed language and do not form part of this sample. This text language shows a SW Midlands usage from a few decades later than that of corpart.

5.7.1 The text dictionary subset

digby86mapt (NW Gloucs) C13b2

OE *berēafian* past part	bireued 1
DEVIL	deuel 4; gen sg deueles 1; pl deuelen 1
EVEN adv	evene 1 eue 1
EVEN noun	gen sg heuene 1
EVER	euere 20 euer- 13 heuere 3 euer 1 heuer- 1
EVIL adj, adv, noun	heuele 3 euele 2 euel 2 vuel 1
HAVE 3sg pres ind	haueþ 18 hauþ 1
HAVE past part	aved 1
HAVE 1/3sg past	heuede 14 hadde 4 hedde 3 had 2 haued 1 hede 1 hevede 1
HAVE 2sg past	heuedest 3 hevedest 1 haddest 1
HAVE pl past	hadden 2 heueden 2
HAVENOT 1/3sg past	nedde 4 neuede 2 nedd- 1
HAVENOT pl past	neden 1
HEAD	heued 4
LADY	leuedi 11 lauedi 1 levedi 1 lewedi 1 leuedy 1; pl leuedies 5
LIVE past part	I-liued 2
LIVE 3sg past	liuede 1
LIVE pl past	liueden 1
NEVER	neuere 28 neuer 7 never 2 nevere 2 newer 2 neuer- 1 neuerr 1
OE *stefn*	steuene 3

[28] Cf. the variable and somewhat eccentric system perpetuated by Hand B of Laȝamon A, LAEME CTT layamonAbt (in London, British Library, Cotton Caligula, A.ix.), which has a very varied set for the past tense of HAVE, including both <fd> and (very unusually for this lexeme) <ft>. We give here the set for 3sg only as an illustration: HAVE 3sg past *hauede* 35 *hæfde* 6 *haueden* 3 *hafte* 3 *hefde* 2 *hafuede* 2 *hefte* 1 *hafde* 1 *hadde* 1 *haueda* 1 *heuede* 1 *hæuede* 1 *ihaued* 1. For the full conspectus of this scribe's usage in the relevant subset of the text dictionary see Appendix (see fn. 2).

Table 7: Summary

System	Region	Date	F + d	F + n	F + l	F + r	VFVC
digby86mapt	South West Midland	C13b2	N/A (N=0)	N/A (N=0)	N/A (N=0)	N/A (N=0)	100% [v] (N=173)

5.7.2 Commentary

It is at once apparent that in this text language there is no sign of the corpart VFCV system at all. The reflexes of that pattern are here entirely of the VFVC pattern except for variable assimilated *hadde*, *hedde* type in the past tense of HAVE, some of these forms (*had*, *hede*(*n*)) also showing degemination.

The loss of <fd> forms seems (at least impressionistically) to have been quite swift. In eLALME (ca 1350-1450) there are no such forms found in either HAD (recorded only for the Southern half of the survey) or LADY (recorded only for the Northern half of the survey), while MED has no citations of such forms in either word post 1300 other than in Northern texts, for which see §6. In HEAD <fd> forms are confined to a small pocket in Norfolk and S Lincs in late Middle English, from which areas they appear to be absent in early Middle English.[29] This restricted and unexpected distribution for HEAD may partly be because of the smaller number of surviving texts in early Middle English, or it may be that a rare survival in Norfolk subsequently spread very locally.[30]

6. The northern problem

The accidents of manuscript survival render the geographical coverage of LAEME (1150–1325) very uneven. There is plenty of surviving material to represent the SW Midlands and a reasonable coverage for the East Midlands. There are large gaps, however, across the South and the Central Midlands. In particular almost no early Middle English survives from the North Midlands and the North. In these circumstances, the North is represented in LAEME by a few texts that are dated to early C14 and possibly even later than the 1325 cut off for the period covered. In relation to the reflexes of our VFC(V) pattern the early C14 northern texts are mostly too short to have any relevant data. Of the others, cotvespcmat, scotwart and edincmct (see the Appendix (see fn. 2)) are unremarkable, showing the same sort of development as the more 'modern' systems discussed in §5. But edincmat and especially edincmbt seem surprisingly conservative in their use of <f>, though in the <fd> set only in VFC contexts. We illustrate below.

6.1. LAEME CTT edincmbt

The LAEME tagged sample is the output of Hand B, fols. 16r–36v of Edinburgh, Royal College of Physicians, MS of *Cursor Mundi*. Hand B's contribution is not in fact of *Cursor Mundi*, but is the Prologue and first thirteen items of *The Northern Homily Collection,* sandwiched between two pieces of the *Cursor Mundi* in the other two hands of the manuscript.

[29] See eLALME, County Dictionary, Items 160-60, 160-61, 160-70, 161 and 182 and Dot Map HEAD: 'hefd' type. Compare LAEME, Maps, Feature Maps HAD pt: 'hVfd-' type, eg *(h)afde*, *hefden*, *hæfde* and incl negative *nefde* etc., HEAD: 'hVfd(-)' type, e.g. *hefd*, *hæfd*, *heafdes* and LADY: all '-fd-' types, e.g. *lafdi*, *leafdi*, *lefdye*. This

[30] MED s.v. head (n.) records sporadic examples of 'hefd-' type spellings elsewhere in late Middle English, either from manuscripts not in eLALME or whose LP samples did not cover the part containing the forms: e.g. in Dorset, London (Gower), Suffolk, Wales.

6.1.2 The text dictionary subset

edincmbt (North Riding Yorks) C14a

BEHOVE sg past	bihoued 1 bi-houed 1 byhoued 1
EVEN adj and adv	euin 2 eu*in* 1 euen 1 even- 1
EVER	eu*er* 19 eu*er*- 6
EVIL adj, adv	iuel 2 ivel 1
HAVE 3sg pres ind	hauis 11 haues 5 hafes 1 hafs 1
HAVE past part	**hafd 1**
HAVE sg past	hauid 38 **hafd 26** haued 21 had 2 aued 1 hafed 1 hafede 1 ***haft 1***
HAVE pl past	hauid 4 **hafd 3** haued 1 had 1
HEAD	heued 2 heuid 2 **hefd 1**
LADY	**lefdye 6** leuedye 5 **lefdi 5** leuedy 4 leuedi 3 lefedy 1 **lefdy 1 lefdeye 1**; gen sg **lefdyes 1**
OE *lǣfan* past pat	***left 1***
OE *lǣfan* 3sg past	***left 1***
OE *lǣfan* pl past	***left 1***
LIVE past part	**lifd 1**
LIVE 1/3sg past	**lifd 2** lifed 1 liued 1
LIVE pl past	**lifd 1**
NEVER	neu*er* 13
OE *rēafian* past part	***reft 4***
OE *rēafian* 3sg past	***reft 3***
OE *rēafian* pl past	***reft 2***
OE *stefn*	steuin 2 steu*in* 1

Table 8: Summary

System	Region	Date	F + d	F + n	F + l	F + r	VFVC
edincmbt	Northern	C14a	79% [f]+[d] 20% [f]+[t] (N=62)	N/A (N=0)	N/A (N=0)	N/A (N=0)	97% [v] 3% [f] (N=155)

6.1.2.1 Commentary

The most obvious interpretation of these data is that they show a continuation of a corpart type system for the reflexes of VFC(V) words, with all but the [fd] set here showing voicing. This includes [n], following the sonority hierarchy. The voiced forms all have following vowel, either etymological or otherwise. *Left* and *reft* additionally show assimilation, whether progressive or regressive (see §5.6.2) and there is even one example of *haft* for past tense of HAVE. This leaves unaccounted for the occasional appearance of intervocalic <f> which at this date, and in an entirely Middle English text, can hardly be an Old English survival.

One of the shibboleths of a northern text in late Middle English is the devoicing which happened when [v] occurred in final position after the loss of final weak [e] (or as is more usually supposed final [ə]), e.g. in spellings such as *luf* LOVE (< OE *lufu* non-northern ME *loue*), *gif* GIVE inf. (< OE *gifan*, non-northern ME *giue*, *yiue*).[31] A corollary to this final devoicing is the presence of <f> spellings for reflexes of Old English intervocalic [v], indicating that the devoiced final [f]

[31] In this text (edincmbt), for instance, final <f> appears in forms of the verb HAVE in 77 instances. Except where variants are also listed, *haf* is the sole form for the category in this LAEME text language: sg imper. 1x, infinitive 22x (*hafe* 1x *haue* 1x), 1st pers sg indic. 29x, plural indic. 18x (*haues* 4x, *hauis* 4x), sbj sg 6x, sbj pl 1x.

was later adopted as part of the stem of the lexeme. It seems that even early in C14 the language of edincmbt shows strong signs of this northern devoicing.[32] Besides the HAVE examples given in fn. 31, it has *drife* DRIVE inf, *gifen* GIVEN beside *giuen*, *knafe*, *knaf-child* KNAVE(CHILD). We assume that the VFC(V) pattern with [f] shown only in the [fd] part of the sonority hierarchy belongs to the same story as the other early Middle English evidence. The intervocalic [f] is likely to belong to the regionally defined later devoicing and analogical levelling, with this text showing an overlap between the two phenomena.

7. Conclusion

In the word sets exemplified in §5 and the Appendix (see fn. 2), a concluding hypothesis is that at least a subset of reflexes of OE *-fd-*, were at least variably pronounced [fd]. Cf. the argument in §1.2 that voicing is a clinal phenomenon, not a binary opposition; though most orthographies treat it as binary. Such a pronunciation existed variably alongside [vd] and more commonly [ved], from voicing of [f] in voiced surroundings and addition of unhistorical [e]. Similarly, at least a subset of reflexes of OE *-fn-,-fl-* and *-fr-* also were at least variably pronounced with voiceless [f]. In other words, what we find in the texts are representations of what was actually current in speech.

How long the [fd] pronunciation may have survived in some words in some locations needs to be a subject of further and more detailed enquiry. Our opening epigraph from Wyatt with the rhyme *swarfde*: *undeseruid* raises some interesting questions. OE *speorfan* GRIND, SCOUR was a strong verb with past tense *spearf*. Middle English *swerven*, *swarven* adds the meanings that we now associate with SWERVE and also develops, beside *swerf*, *swarf*, a weak verb past tense *swerved*, *swarved* (see MED s.v. swerven (v.) and OED s.v. swerve). Wyatt's rhyme may have been on [er] or [ar] (via lowering of [e] before [r]). But whether the 'rfd' spelling reflects [rfd] or [rvd] is not knowable. The Wyatt family was originally from Yorkshire (where final devoicing may have been a factor). Thomas was born in Kent but educated at Cambridge (bordering on Norfolk where the [fd] spellings in HEAD seem to have survived most prolifically in late Middle English).

Whatever its possible post-Middle English history, however, historical [fd] in these contexts did not remain. Subsequent changes resulted in one of three outcomes: (a) loss of the fricative altogether e.g. HAD, HEAD, LADY; (b) the voiced sound prevailed with either historical or epenthetic following vowel, which may later be lost e.g. EVER, NEVER, LIVED, BEREAVED; (c) the [d] element devoiced resulting in [ft], e.g. LEFT, (BE)REFT.

References

Bammesberger, Alfred. 1988. Voice opposition in the system of Old English spirants. In Dieter Kastovsky and Gero Bauer, in collaboration with Jacek Fisiak (eds), *Luick Revisited: Papers read at the Luick-Symposium at Schloß Liechtenstein, 15.-18.9.1985*. Tübinger Beiträge zur Linguistik 288. Tübingen. 119-26.

Brunner, Karl. 1965. *Altenglishche Grammatik, nach der angelsächsischen Grammatik von Eduard Sievers*. Tübingen: M. Niemeyer.

Campbell, Alistair. 1959. *Old English Grammar.* Oxford: Clarendon Press.

CoNE = Roger Lass, Margaret Laing, Rhona Alcorn & Keith Williamson, *A Corpus of Narrative Etymologies from Proto-Old English to Early Middle English and accompanying Corpus of Changes*. Edinburgh: Version 1.1, 2013-, © The University of Edinburgh. [http://www.lel.ed.ac.uk/ihd/CoNE/CoNE.html].

[32] This also happened in Older Scots, see Maguire et al. forthc. Indeed it still survives in many Scots dialects and/or in the Scots end of the typical Scottish English speaker's register continuum. See further, Molineaux & Alcorn (2016).

d'Ardenne, S.T.R.O., (ed.) 1961. *Þe Liflade ant þe Passiun of Seinte Iulienne*, EETS OS 248. London: Oxford University Press.

DOE = *Dictionary of Old English: A to H* online. 2016. Cameron, Angus, Ashley Crandell Amos, Antonette diPaolo Healey *et al* (eds). Toronto: Dictionary of Old English Project.

eLALME = Michael Benskin & Margaret Laing 2013-. *An Electronic Version of A Linguistic Atlas of Late Mediaeval English* with webscripts by Vasilis Karaiskos & Keith Williamson. [http://www.lel.ed.ac.uk/ihd/elalme/elalme.html] Edinburgh: © The Authors and The University of Edinburgh.

Fulk, Robert D. 2001. Conditions for the voicing of Old English fricatives, I: Phonology. *Interdisciplinary Journal for Germanic Linguistics and Semiotic Analysis* 6: 55–77.

Fulk, Robert D. 2002. Conditions for the voicing of Old English fricatives, II: Morphology and syllable structure. *English Language and Linguistics* 6.1: 81–104.

Goblirsch, Kurt, Gustav. 2005. *Lautverschiebungen in den germanischen Sprachen.* Heidelberg: Universitätsverlag, Winter.

Hogg, Richard M. 1992. *A Grammar of Old English*. *Volume 1 Phonology*. Oxford: Wiley-Blackwell.

Hogg, Richard M. & Robert D. Fulk. 2011. *A Grammar of Old English*. *Volume 2 Morphology*. Oxford: Wiley-Blackwell.

Kastovsky, Dieter. 1996. Categorial restructuring of the weak verbs in late Old English and Middle English. In Jaček Fisiak (ed.), Middle English miscellany: from vocabulary to linguistic variation. Posnan: Motivex. 29–45.

LAEME = Laing, Margaret 2013-. *A Linguistic Atlas of Early Middle English, 1150-1325*, Version 3.2 (With Roger Lass (Introduction) and webscripts by Keith Willamson, Vasilis Karaiskos & Sherrylyn Branchaw.) [http://www.lel.ed.ac.uk/ihd/laeme2/laeme2.html]. Edinburgh: © The University of Edinburgh.

Laing, Margaret. 2009. Orthographic indications of weakness in early Middle English. In Donka Minkova (ed.), *Phonological weakness in English*, 237–315. Basingstoke: Palgrave Macmillan.

Lass, Roger. 1992. Phonology and Morphology. In Norman Blake (ed.), *The Cambridge History of the English Language II 1066–1476*, pp. 23–155. Cambridge: Cambridge University Press.

Lass, Roger. 2009. On schwa: synchronic prelude and historical fugue. In Donka Minkova (ed.), *Phonological weakness in English*, 47–77. Basingstoke: Palgrave Macmillan.

Luick, Karl. 1914–41. *Historische Grammatik der englischen Sprache.* Leipzig: C. Tauchniz.

Maguire, M., R. Alcorn, B.Molineaux, J. Kopaczyk, V. Karaiskos & B. Los. forthc. Charting the rise and demise of a phonotactically motivated change in Scots. *Folia Linguistica Historica*.

MED = The electronic Middle English Dictionary [http://quod.lib.umich.edu/m/med/].

Minkova, Donka. 2011. Phonemically contrastive fricatives in Old English. *English Language and Linguistics* 15.1: 31–59.

Molineaux, Ben & Alcorn, Rhona. 2016. Grapho-phonological parsing of C15 Scots: a reassessment of the [v]~[f] alternation? Paper presented at ICEHL 19, Essen.

Mossé, Ferdinand. 1952. *A Handbook of Middle English*. Baltimore: The Johns Hopkins University Press.

Murray, Robert W. 1991. Early Germanic syllable structure revisited. *Diachronica* 8: 201–38.

OED = *Oxford English Dictionary* online (OED3): [http://www.oed.com].

Pope, M.K. 1934. From Latin to modern French with especial consideration of Anglo-Norman. Manchester University Press.

Stanley, E.G. 1969. Laȝamon's Antiquarian Sentiments. *Medium Ævum* 38: 23–37.

Trask, R.L. 1996. *A dictionary of phonetics and phonology*. London: Routledge

Vennemann, Theo. *Preference laws for syllable structure and the explanation of sound change, with special reference of German, Germanic, Italian and Latin.* Berlin: de Gruyter.

Wright, Joseph & Elizabeth Mary. 1928. *An elementary Middle English grammar*. 2nd edn. London: Oxford University Press.